

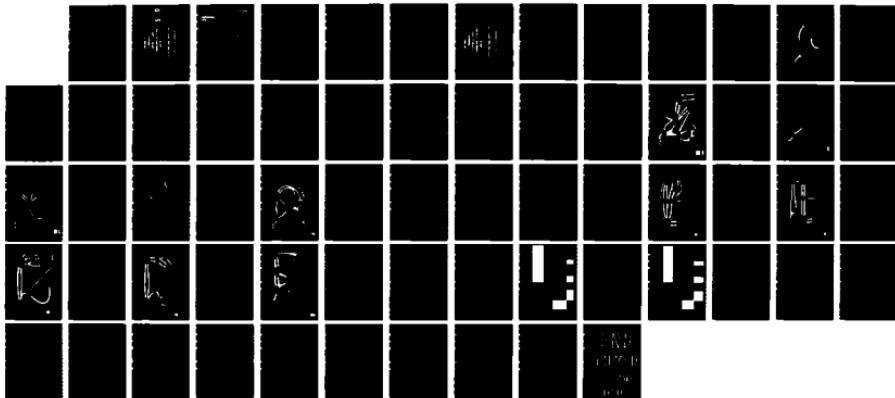
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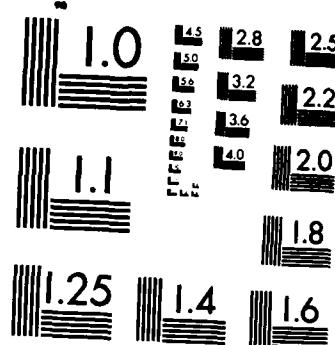
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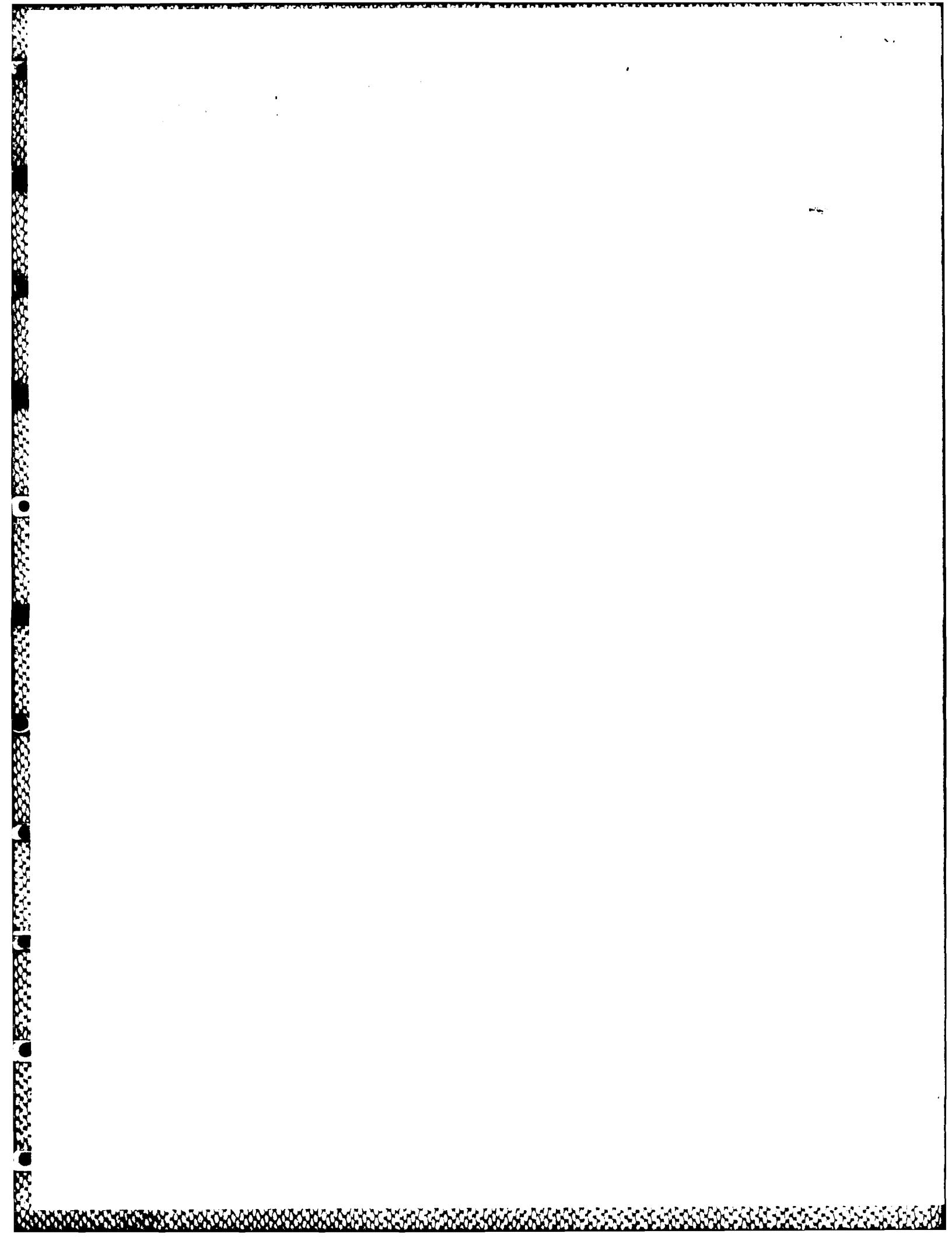
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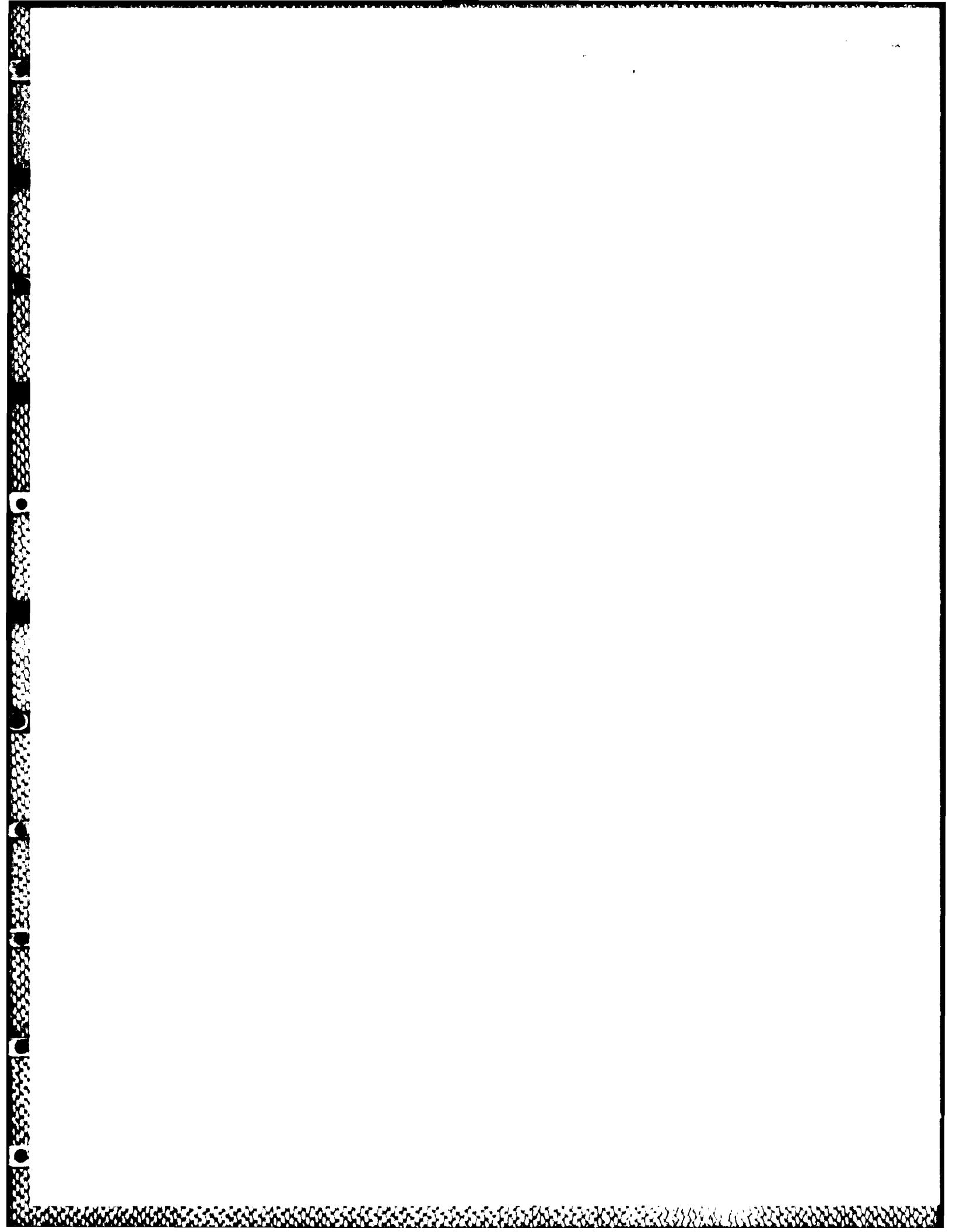
The Assistant Secretary of Defense for Communications, Command, Control and Intelligence (ASDC³I) tasked the Director, Defense Communications Agency (DCA) to conduct a study to identify and describe the command, control, and communications (C³) and automatic data processing (ADP) systems supporting mobility. This Executive Summary and its companion volumes provide the requested descriptions of ADP systems, both hardware and software, and communications connectivity supporting mobility C³. For the purposes of this report, mobility encompasses unit deployments, materiel resupply operations, and nonunit-related personnel (NRP) replacements.

This Executive Summary provides an overview of Volumes I and II. Volume I (Deployment) identifies and describes the ADP systems and communications connectivity supporting the Joint Operations Planning System (JOPS) Deliberate Planning process (JOPS Volume III), and the JOPS Crisis Action System (time-sensitive) planning, execution, and execution monitoring processes (JOPS Volume IV). The Transportation Operating Agencies (TOAs) also are discussed

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with particular emphasis on their organization, missions, functions, and the ADP system and the ADP system and communications connectivity supporting their roles in deployment planning, execution, and execution monitoring. Volume II (Materiel Resupply and Personnel Replacement) describes the flow of requisitions and materiel movement information for each Service. It also describes the Defense Logistics Agency (DLA) resupply systems. In addition, Volume II identifies and describes the ADP systems supporting these flows. The source of personnel replacements is identified in Volume II along with discussions of the information flows associated with the authorization, requesting, reassignment, and movement of replacement personnel. Volume III (Reference Appendices) provides detailed supplemental information on areas addressed in Volumes I and II.



**MOBILITY
COMMAND,
CONTROL, AND
COMMUNICATIONS
(MOB C³)**

SYSTEM DESCRIPTION

EXECUTIVE SUMMARY

PREPARED BY THE DEFENSE COMMUNICATIONS AGENCY, WASHINGTON, D.C. 20305
AND
THE BDM CORPORATION, 7915 JONES BRANCH DRIVE, MCLEAN, VA 22102
UNDER CONTRACT DCA100-82-C-0040

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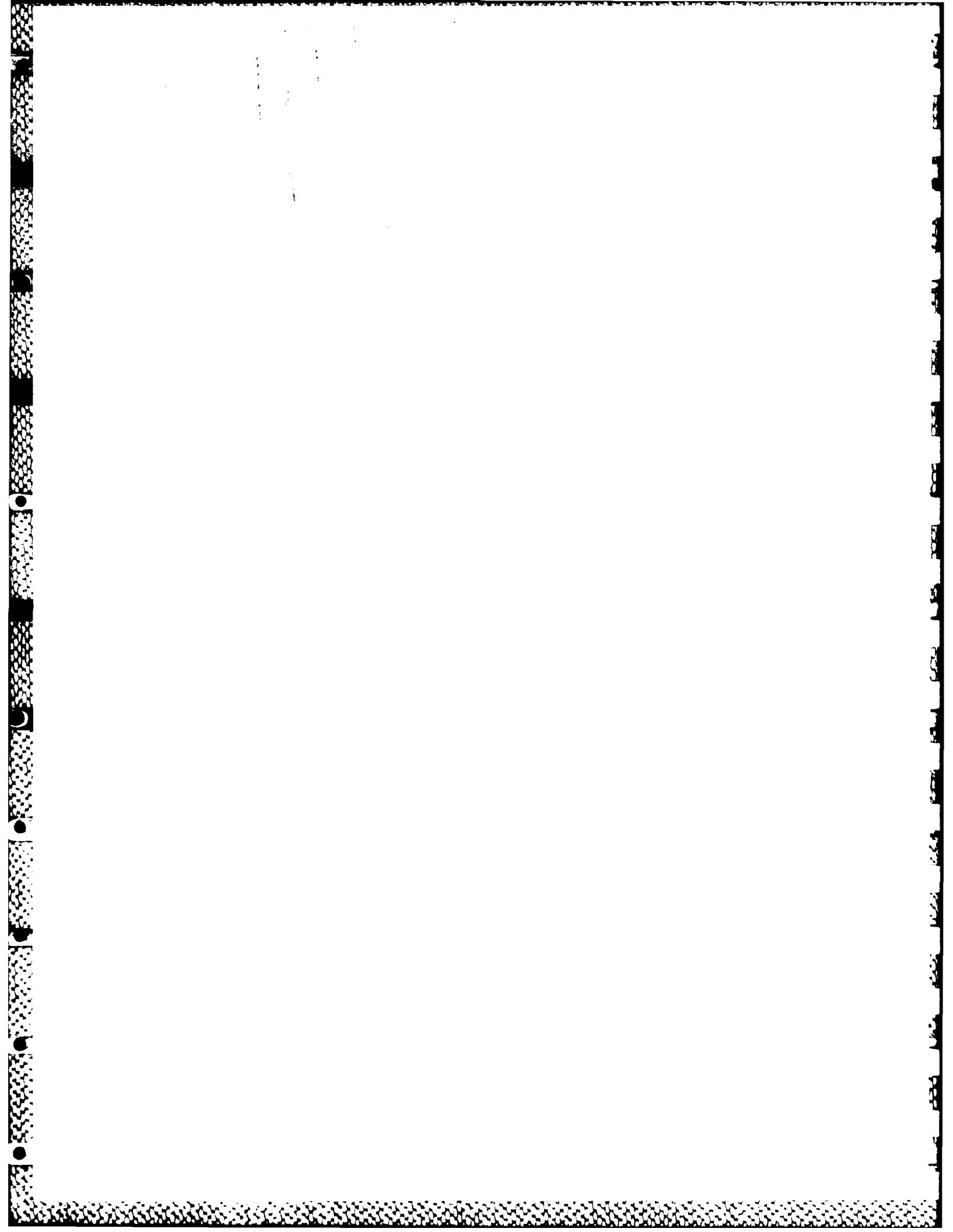


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VOLUME I - DEPLOYMENT

VOLUME II - MATERIEL RESUPPLY AND PERSONNEL REPLACEMENT

VOLUME III - REFERENCE APPENDICES

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INTRODUCTION



ASD (C³)
ADUSD (NW&M)

IDENTIFY & DESCRIBE
C³ AND ADP SYSTEMS
SUPPORTING MOBILITY

MOBILITY DEFINED AS—
• DEPLOYMENT
• MATERIEL RESUPPLY
• PERSONNEL REPLACEMENT

MOBILITY C³ SYSTEM DESCRIPTION

- EXECUTIVE SUMMARY
- VOLUME I- DEPLOYMENT
- VOLUME II- MATERIEL RESUPPLY AND PERSONNEL REPLACEMENT
- VOLUME III- REFERENCE APPENDICES

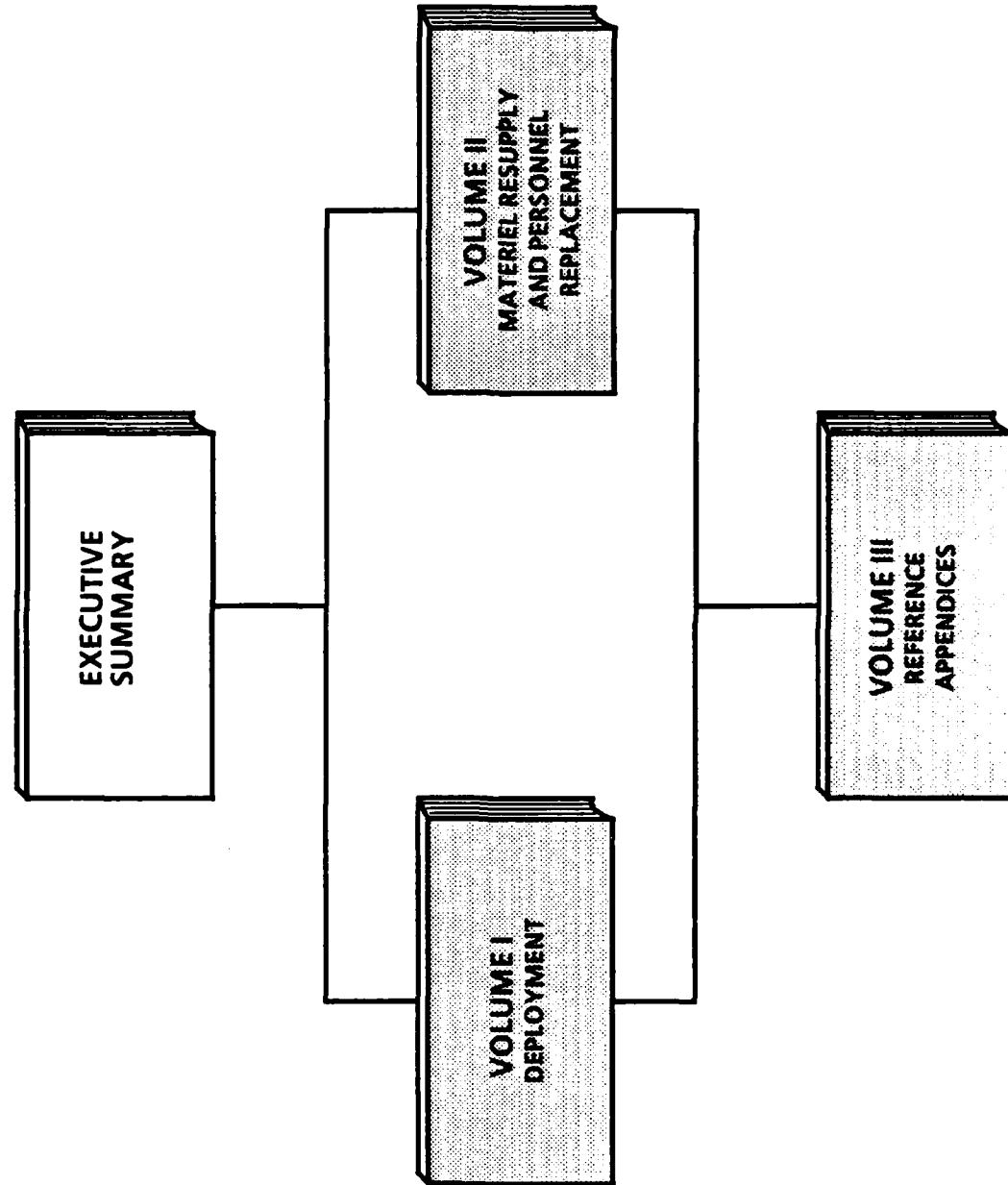
INTRODUCTION

The Assistant Secretary of Defense for Communications, Command, Control, and Intelligence (ASDC3I) tasked the Director, Defense Communications Agency (DCA) to conduct a study to identify and describe the command, control, and communications (C3) and automatic data processing (ADP) systems supporting mobility. This Executive Summary and its companion volumes provide the requested descriptions of ADP systems, both hardware and software, and communications connectivity supporting mobility C3.

For the purposes of this report, mobility encompasses unit deployments, materiel resupply operations, and nonunit-related personnel (NRP) replacements. In this report, deployment means the movement of units from their home station in CONUS through ports of embarkation (POE) and debarkation (POD) to an assembly area in a theater of operations. The term materiel resupply, as used in this report, refers to the requisitioning, allocation, and movement of resupply items. Requisitioned resupply involves obtaining materiel through the process of preparing and submitting requisitions. Allocated resupply consists of the allocation of subsistence; petroleum, oils, and lubricants (POL) in bulk; and conventional ammunition to using units. Nonunit-related personnel (NRP) replacement involves the authorization, requesting, reassignment, and movement of replacement personnel. Both materiel resupply and personnel replacement operations are Service unique functions and are addressed by Service.

This report consists of an Executive Summary which provides an overview of Volumes I and II. Volume I (Deployment) identifies and describes the ADP systems and communications connectivity supporting the Joint Operations Planning System (JOPS) Deliberate Planning process (JOPS Volume III), and the JOPS Crisis Action System (time-sensitive) planning, execution, and execution monitoring processes (JOPS Volume IV). The Transportation Operating Agencies (TOAs) also are discussed with particular emphasis on their organization, missions, functions, and the ADP system and communications connectivity supporting their roles in deployment planning, execution, and execution monitoring. Volume II (Materiel Resupply and Personnel Replacement) describes the flow of requisitions and materiel movement information for each Service. It also describes the Defense Logistics Agency (DLA) resupply systems. In addition, Volume II identifies and describes the ADP systems supporting these flows. The source of personnel replacements is identified in Volume II along with discussions of the information flows associated with the authorization, requesting, reassignment, and movement of replacement personnel. Volume III (Reference Appendices) provides detailed supplemental information on areas addressed in Volumes I and II.

BOOKMAP



BOOKMAP

This chart shows the relationship between the four documents of the Mobility Command, Control, and Communications (MOB C3) System Description. The four documents and their subject matter are:

- (1) **Executive Summary:** The Executive Summary provides an overview of Volumes I and II. Specifically, it summarizes at a high level the information flows associated with the following:
 - (a) Deliberate and time-sensitive deployment planning;
 - (b) Deployment execution and monitoring;
 - (c) Materiel resupply repositioning, allocation, and movement; and
 - (d) Replacement of nonunit-related personnel.
- (2) **Volume I - Deployment:** This stand-alone volume consists of a standard introduction to the study and then the main body of this volume. The introduction presents the background, scope, and other general information which help set the stage for the materiel addressed in the later sections of this report. The deployment section identifies the key members of the Joint Deployment Community (JDC), describes the procedures and processes which occur during deployment planning, identifies and describes the organizations which are key players in the execution of a joint deployment, and describes the current and planned communications and ADP systems that support deployment planning and execution.
- (3) **Volume II - Materiel Resupply and Personnel Replacement:** This stand-alone volume also consists of a standard introduction and then a main body. Following the introduction, this volume presents descriptions of the materiel resupply requisition and subsequent movement functional flows for each Service and the Defense Logistics Agency (DLA). These functional flows are followed by identification and description of the current and planned communications and ADP systems which support the management of requisitioning and movement operations. The requisitioned materiel resupply section is followed by a description of the information flow and C3 for allocated materiel resupply. The final section identifies nonunit-related personnel sources and presents the information flow for the management of personnel replacements.
- (4) **Volume III - Reference Appendices:** The reference appendices provide detailed information which supplements the materiel included in Volumes I and II as well as a list of acronyms used in this report.

DEFINITIONS

MOBILITY:

The request for and movement of people and cargo in support of deployment, materiel resupply, and nonunit-related personnel replacement operations.

MOBILITY C3 SYSTEM:

A collage of people, organizations, procedures, ADP, and communications systems that provide, process, and evaluate data in support of mobility decision making, planning, coordinating, and operating.

DEFINITIONS

This chart provides definitions for the terms mobility and the mobility C3 system as used in this report. Although they are nonstandard definitions, they are used consistently throughout this document and its companion volumes.

Deployment, materiel resupply, and personnel replacement operations all compete for transportation assets. The movement requirements associated with each of these operations are generated by someone submitting a requirement for people or cargo. Therefore, mobility in this report means the request for and movement of people and cargo in support of deployment, materiel resupply, and nonunit-related personnel replacement operations.

The focus of this report is on mobility command, control, and communications (C3). Traditionally, however, logistical operations such as transportation, resupply, and personnel replacement are not considered to have any command and control functions. Rather, logisticians tend to speak in terms of the administration, management, and coordination of logistical operations. There is growing recognition within the Department of Defense (DOD) that command and control should be exercised over these operations just as it is over tactical and strategic operations. Therefore, the mobility C3 system, as defined in this report, is a collage of people, organizations, procedures, ADP, and communications systems that provide, process, and evaluate mobility data in support of mobility decision making, planning, coordinating, and operating.

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DEPLOYMENT COMMUNITY

ORGANIZATION

- JCS
- JDA
- TOAs
- SERVICES
- SUPPORTED CINCs
- MAJOR COMMANDS

RESPONSIBILITY

- MANAGES PLANNING AND EXECUTION
- JCS EXECUTIVE AGENT, COORDINATOR, AND MONITOR
- SCHEDULES AND TRANSPORTS
- RESOURCE IDENTIFIERS AND PROVIDERS
- REQUIREMENTS GENERATOR, SCHEDULE CONFLICT ADJUDICATOR, RECEIVER OF DEPLOYING UNITS
- SUPPORTING CINCs/COMMANDS
- PROVIDE DESIGNATED RESOURCES
- PROVIDE DESIGNATED RESOURCES

DEPLOYMENT COMMUNITY

This chart identifies the members of the Joint Deployment Community (JDC) with a notation of their major responsibilities.

JCS - The Joint Chiefs of Staff manage the planning process, provide courses of action and recommendations to the National Command and Authorities (NCA), and convey NCA decisions to the unified and specified commands and joint task forces, when established.

JDA - The Joint Deployment Agency, as the JCS Executive Agent, takes the central role in coordinating deployment planning and execution in accordance with JCS guidance.

TOAs - The Transportation Operating Agencies, Military Airlift Command (MAC), Military Sealift Command (MSC), and Military Traffic Management Command (MTMC) provide transportation services to Department of Defense (DOD) components.

Services - The Services--Army, Navy, Air Force, and Marines--identify to the JCS the major combat forces available for inclusion in the Joint Strategic Capabilities Plan (JSCP). They identify to the Supported CINC and Service components the combat, combat support, and combat service support forces not listed in the JSCP but that are required to support the major combat forces. They publish the consumption factors for various levels of conflict that are used to compute resupply and personnel replacement requirements.

Supported CINCs - Supported CINCs have primary responsibility for all aspects of a task assigned in the JSCP or as otherwise assigned by the JCS.

Supporting CINCs/Commands - Supporting commanders provide augmentation forces, material resupply, filler and nonunit-related personnel, or other support, as designated, to a supported CINC.

Major Commands - The Service major subordinate commands provide support forces that are identified (sourced) through the Service staffs.

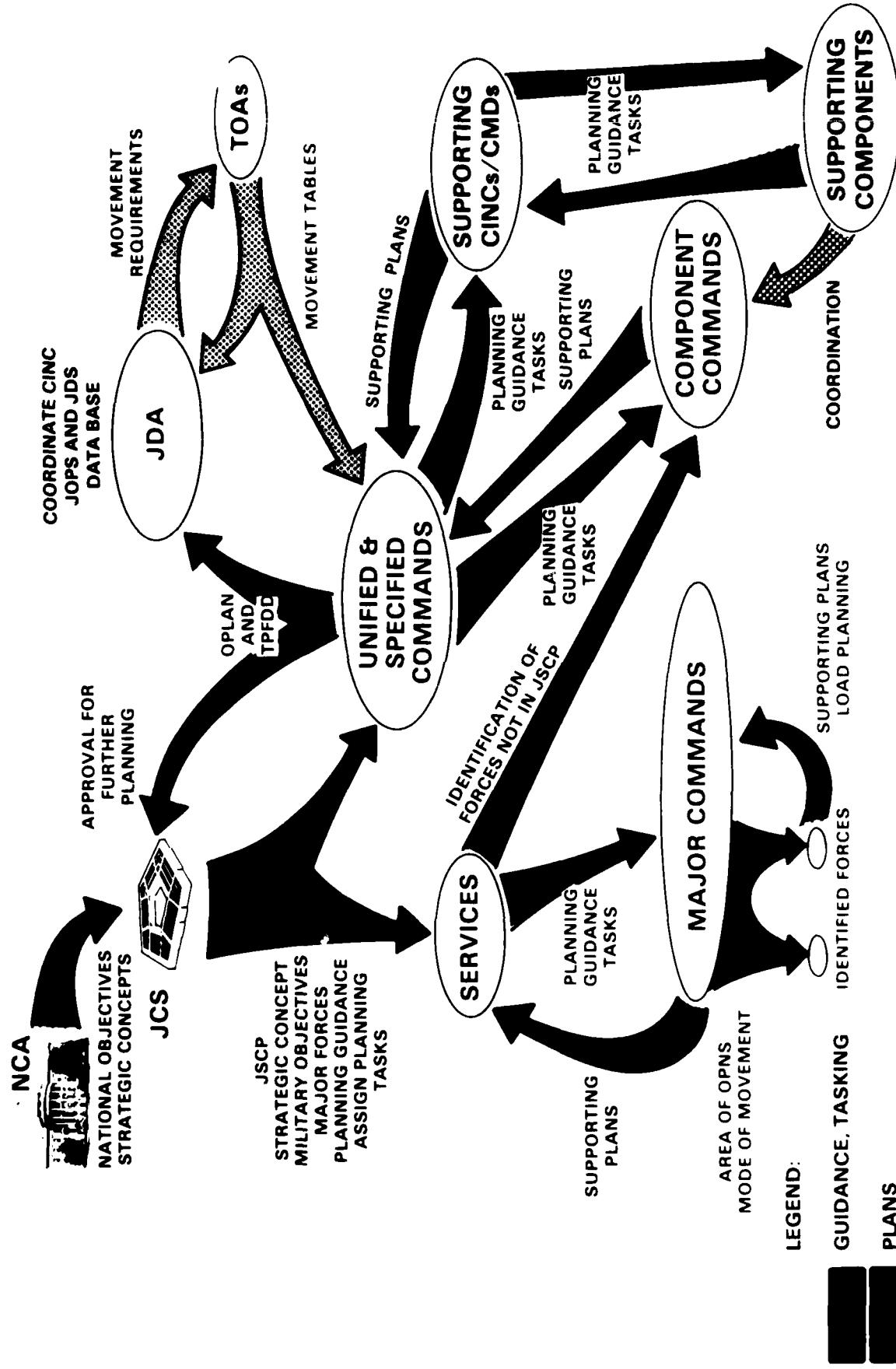
DEPLOYMENT INFORMATION FLOW

- DELIBERATE PLANNING
- EXECUTION PLANNING WARNING ORDER
- EXECUTION PLANNING ALERT ORDER
- EXECUTE ORDER
- EXECUTION MONITORING

DEPLOYMENT INFORMATION FLOW

This chart identifies at a very high level the major events involved in deployment planning, execution, and execution monitoring. Subsequent charts depict for each event the exchange of information among members of the Joint Deployment Community. This is done through information flow diagrams that illustrate the flow of tasking, guidance, plans, orders, and event reporting. Also shown in the charts are simplified representations of the physical movement of forces. The communications connectivity for the information flow depicted in each chart is discussed in the accompanying text.

DELIBERATE PLANNING INFORMATION FLOW



DELIBERATE PLANNING INFORMATION FLOW

This chart shows the flow of information in the development of an Operations Plan (OPLAN) using JOPS Volume III procedures. The cycle begins with the National Command Authorities (NCA) establishing the national objectives and strategic concepts. The Joint Chiefs of Staff (JCS) develop the Joint Strategic Capabilities Plan (JSCP) which embodies the NCA strategic concepts, establishes the military objectives to implement these concepts, and identifies the major forces for accomplishing the military objectives. The Unified and Specified (U&S) Commands pass the guidance, appropriate planning tasks, and schedules to the component commands, supporting CINCs/commands, and the Joint Deployment Agency (JDA) in order that file space may be made available in the JOPS/Joint Deployment System (JDS) data base.

The Services receive copies of the JSCP and identify (source) the additional forces necessary to support the major forces identified in the JSCP. The Services inform the U&S component commands of the additional support forces identified. The Services pass the planning guidance, tasking, and schedules to their major commands. The major commands pass the guidance, tasking, and planning schedules to the major forces listed in the JSCP and the supporting forces identified by the Services.

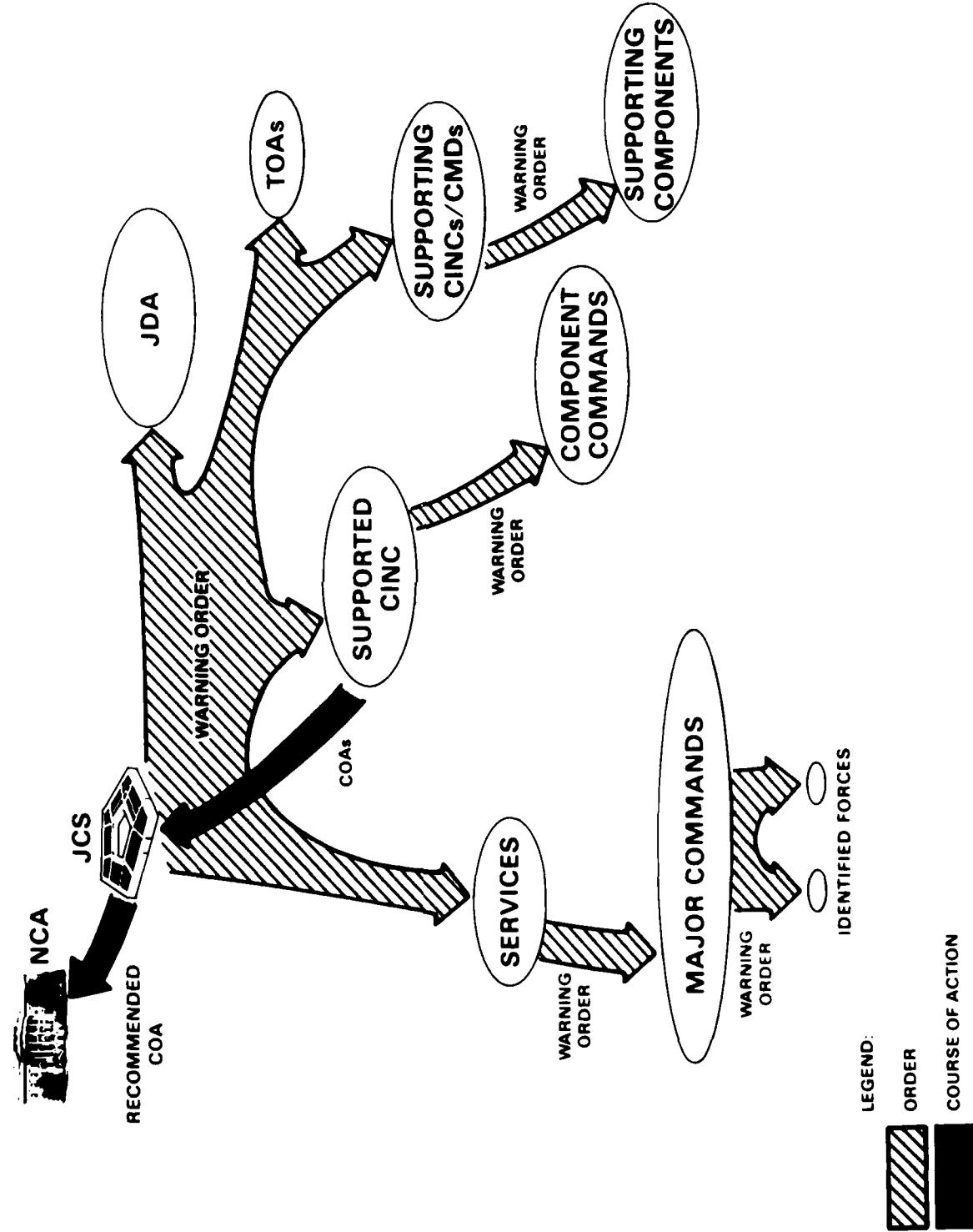
Each component command develops a concept of operations to accomplish its assigned tasks. Each plan contains a time-phased force deployment list (TPFDL) comprised of the major forces listed in the JSCP and the support forces identified by the Services. During the development of the TPFDL, the component commands load the unit listing, its personnel strength, and weight and measurements of oversize, oversize, and bulk cargo into their WWMCCS host computer. The TPFDL and its associated data is the time-phased force deployment data (TPFDD). The TPFDD is processed by the WWMCCS host using the Force Requirements Generator (FRG) to build the force structure and to identify shortfalls. The component commands then communicate these shortfalls to the supported CINC. The TPFDD also provides the input for the Movement Requirements Generator (MRG) which estimates the aggregate movement requirements of the proposed force structure.

Each component command forwards its concept of operations to the U&S Command for review and approval. A consolidated TPFDD is produced and the desired POD added. The consolidated TPFDD is loaded into the U&S Command WWMCCS host and processed using the FRG, MRG, and Transportation Feasible Estimator (TFE) to determine the gross transportation feasibility of the consolidated TPFDD. The consolidated TPFDD is also forwarded to the JDA using WIN File Transfer.

The JDA hosts the U&S Command Phase I refinement conference where shortfalls in the force structure are resolved to the extent practical. A Phase II refinement conference is hosted by JDA where the movement tables developed by the TOAs are approved.

The communications connectivity in the deliberate planning cycle is primarily the WWMCCS Inter-computer Network (WIN), AUTODIN, and mail. The TPFDD may be forwarded to the U&S command by WIN File Transfer or mail. The complete TPFDD is transferred to JDA via the WIN File Transfer. The WWMCCS Teleconferencing capability is used extensively during the deliberate planning refinement conferences.

EXECUTION PLANNING WARNING ORDER INFORMATION FLOW



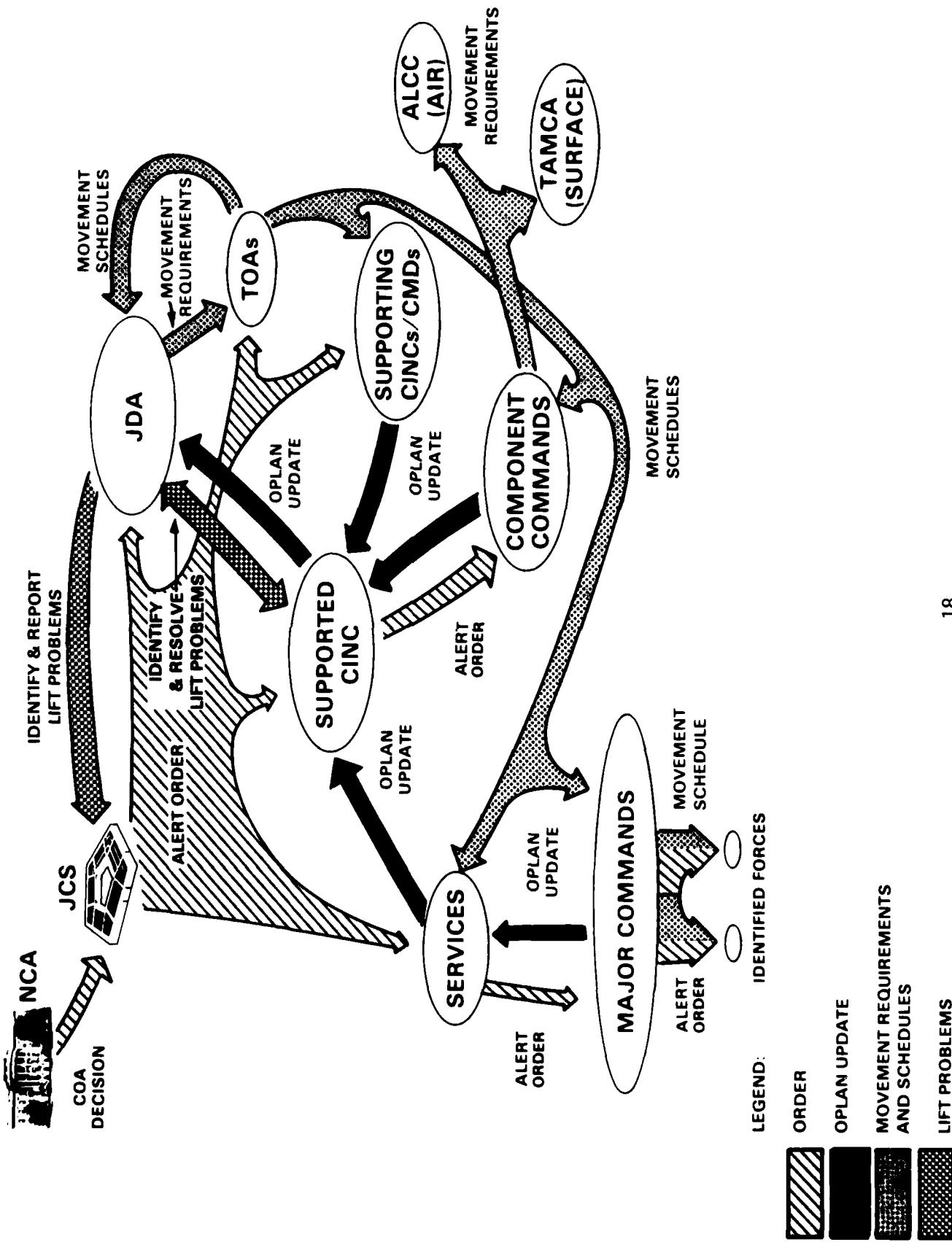
EXECUTION PLANNING WARNING ORDER INFORMATION FLOW

This chart shows the flow of information in the time-sensitive planning system, known also as the Crisis Action System (CAS), using the Joint Operations Planning System (JOPS) Volume IV procedures beginning with Phase III, Course of Action (COA) Development, and issuance by the Joint Chiefs of Staff (JCS) of a Warning Order. Phase I, Situation Development, and Phase II, Crisis Assessment, during which the National Command Authorities (NCA) have declared a crisis and provided the JCS with the NCA options are assumed to have occurred.

Upon receiving the NCA crisis declaration and options, the JCS prepares a Warning Order that tasks the appropriate Unified or Specified Commander (supported Commander-in-Chief (CINC)) to develop courses of action (COAs). Planning guidance and pertinent information also is provided to the supported CINC. The JCS informs the Services, Joint Deployment Agency (JDA), Transportation Operating Agencies (TOAs), and supporting commands of the tasking. The Services inform their major commands which pass the Warning Order on to the forces that may be involved. The supported CINC passes the Warning Order to the Service component commands. The Services and commands involved began reviewing appropriate plans. The supported CINC develops the COAs, with inputs from the Services and commands involved. The supported CINC submits a Commander's Estimate to the JCS for each COA recommended. The JCS then refines the COAs and forwards the recommended COA to the NCA.

The NMCCS Intercomputer Network (WIN) provides the primary communications connectivity among the JCS, the supported CINC, the Services, the supporting commands, and the Service major commands. The common-user AUTODIN system serves as the primary communications media between the Service major commands and the subordinate forces.

EXECUTION PLANNING ALERT ORDER INFORMATION FLOW



EXECUTION PLANNING ALERT ORDER INFORMATION FLOW

This chart shows the flow of information from the COA decision by the NCA, through issuance of the Alert Order by the JCS, to the conclusion of the execution planning activities.

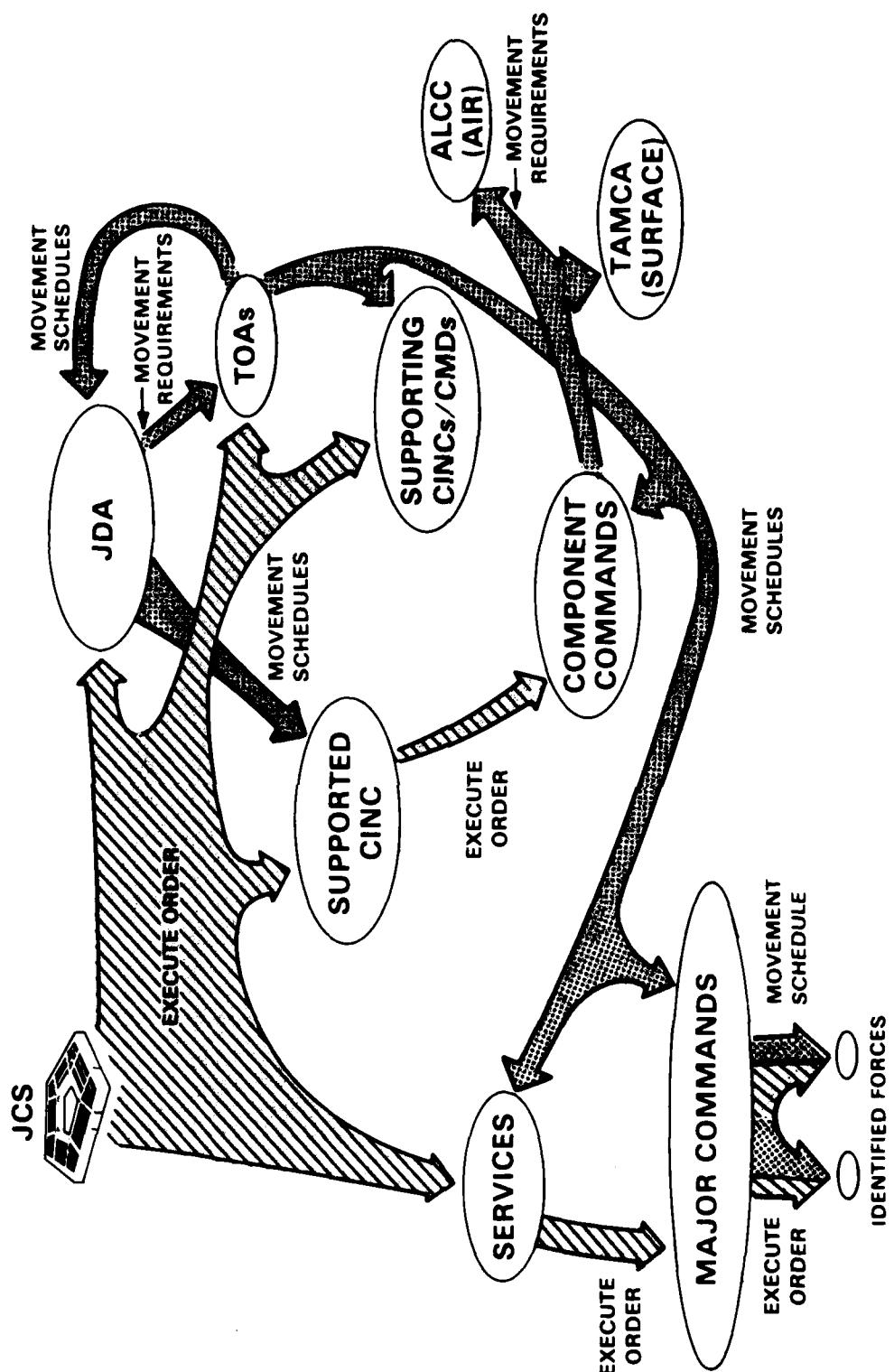
Upon receipt of the NCA course of action decision, the JCS prepares an Alert Order and transmits it to the Services and principal commands participating in the planning. Appropriate additional guidance also is provided. The Services pass the Alert Order and additional guidance to their major commands which, in turn, pass them to the identified forces. The supported CINC passes the Alert Order and the additional guidance to the component commands. The supported CINC prepares the basic operations order (OPORD), using the OPLAN identified under the Warning Order, the Alert Order with its additional guidance, and information on the current situation.

The supported CINC transmits the OPORD to all participants in the execution planning process. The participants review the OPORD requirements and provide the supported CINC updated movement requirements. The supported CINC then updates the Joint Operation Planning System/Joint Deployment System (JOPS/JDS) data base.

The TOAs pull the movement requirements from the JOPS/JDS data base and produce preliminary movement schedules. The focus is on the first five days of airlift and the first 30 days of sealift. The preliminary movement schedules are coordinated by the JDA with the supported CINC. Any transportation conflicts that can not be resolved by the supported CINC with the other participants are reported by JDA to the JCS. These conflicts are resolved by the JCS and all participants informed of the resolution. The JDA updates the JOPS/JDA data base. The TOAs pull the updated movement requirements and produce new movement schedules. The component commands, upon receiving the new movement schedules inform their subordinate organizations responsible for surface (Theater Army Movement Control Center (ALCCC)) and air (Airlift Control Center (TAMCA)) movement of the intratheater POD to assembly-area movement requirements. The supported CINC updates the OPORD and issues it to all participants. The OPORD is also provided to the JCS who advise the NCA that planning is complete.

The WIN is the primary communications connectivity among the JCS, supported CINC, supporting CINCs/commands, component commands, Services, and Service major commands. The common-user AUTODIN system provides a backup to WIN and primary communications connectivity between the Service major commands and their subordinate units. The AUTODIN system also provides the primary communications connectivity between the component commands and their subordinate units. The backup connectivity is provided by tactical communications systems, when installed, and in some cases host country commercial systems. Courier, messenger, or handdelivery is a last resort but viable alternative.

EXECUTE ORDER INFORMATION FLOW



LEGEND:



EXECUTE ORDER INFORMATION FLOW

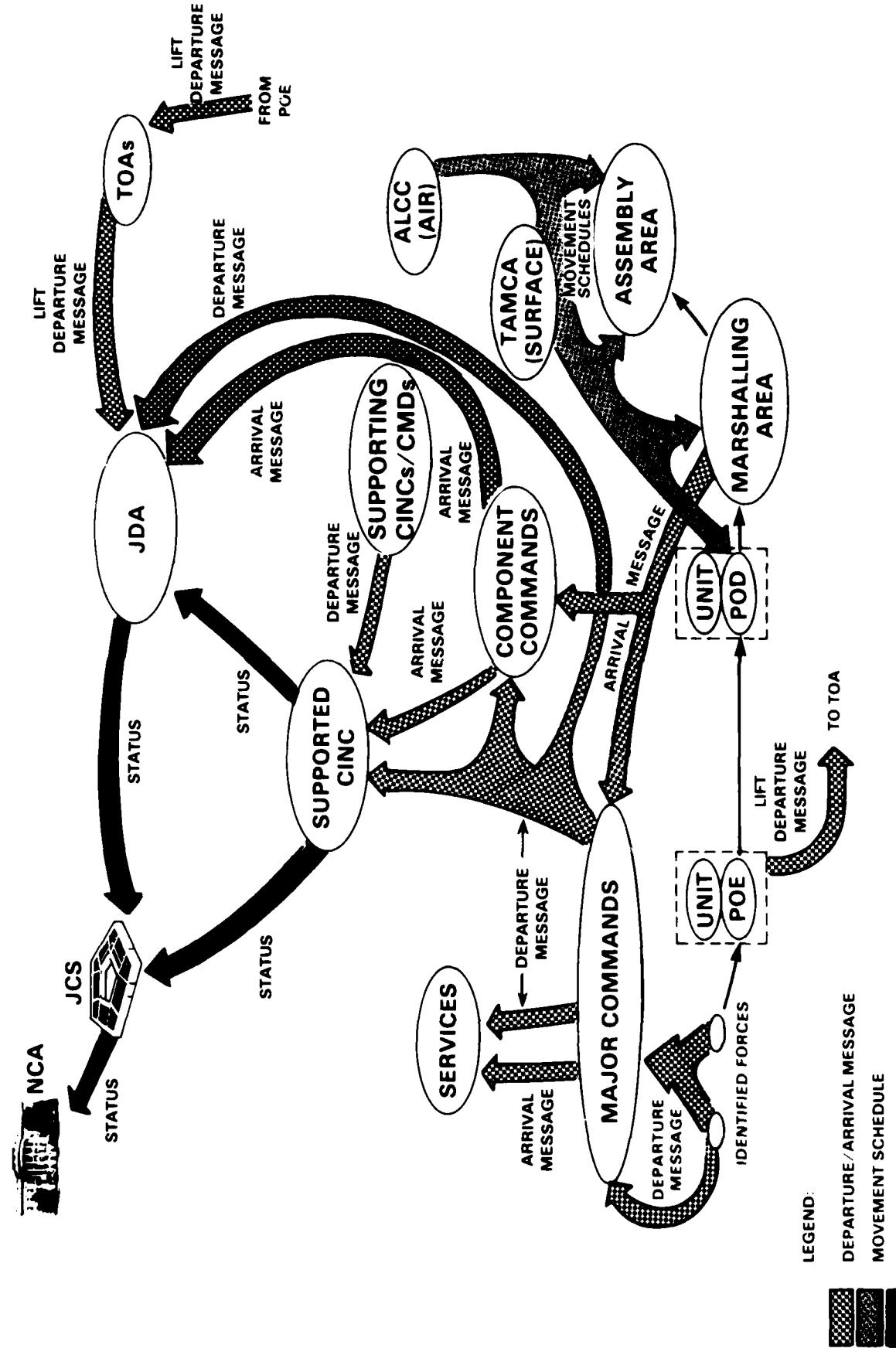
This chart depicts the information flow from the decision by the NCA that the situation requires a military response, through the issuance of the Execute Order by the JCS, to issuance of Port Calls by MTMC for intra CONUS movements.

Upon receipt of the NCA decision that a situation requires a military response, the JCS prepares and issues the Execute Order to the Services, supported CINCs, supporting CINCs/commands, JDA, and TOAs. The Services pass the Execute Order to their major commands who, in turn, pass it on to the identified forces. The supported CINC passes the Execute Order to the component commands. As the Execute Order is passed downward, implementing instructions are also prepared and issued.

The JDA updates the JOPS/JDS data base as required. The TOAs revise the movement schedules as directed, and distribute them to the JDA, supporting commands, component commands, the Services, and their subordinate commands. The JDA provides the supported CINC with the revised movement schedules. The component commands inform their subordinate organizations responsible for surface (TAMCA) and air (ALCC) movement, of the POD to assembly area movement requirements. MTMC, a TOA, issues a Port Call to each unit requiring CONUS surface movement from its home station to the POE. The Port Call is based on the movement schedule and is the unit's authority to move.

The primary communications connectivity is the WIN among the JCS, supported CINC, supporting CINCs/commands, component commands, Services, and Service major commands. The common-user AUTODIN system provides a backup to WIN and primary communications connectivity between the Service major commands and their subordinate units. The AUTODIN system also provides the primary communications connectivity between the component commands and their subordinate units. The backup connectivity is provided by tactical communications systems, when installed, and in some case host country commercial systems. Courier, messenger, or hand delivery are also viable alternatives.

EXECUTION MONITORING INFORMATION FLOW



EXECUTION MONITORING INFORMATION FLOW

This chart shows the flow of information in the monitoring of deployment execution from the time a unit starts to move from its home station through arrival in theater and onward movement to either a marshalling or assembly area.

A unit normally moves in three increments, an advance party, the main body, and the rear party. The movement is sequential, in the order listed, and spaced in time. Upon receipt of the Port Call, the unit completes the arrangements to depart its home station. The day the advance party departs the home station, a message is prepared for transmission over AUTODIN informing the Service major command that the unit is moving. The main body and the rear party follow on a prearranged schedule with the major command being informed of each departure. The major command, when informed that the advance party has departed its home station, informs the Service, the supported CINC, and the Joint Deployment Agency (JDA) that the unit has departed its home station. The departure of the main body and the rear party are not reported by the major command. The supporting commands inform the supported CINC of the departure of their subordinate units. The supported CINC periodically updates the deployment status information at JDA. The Transportation Operating Agencies (TOAs) inform JDA of initial lift vehicle departures. The supported CINC and the JDA provide status information to the Joint Chiefs of Staff (JCS) who, in turn, provide status information to the NCA.

The advance party, main body, and rear party of the unit move at scheduled intervals through the port of embarkation (POE) and port of debarkation (POD) to either a marshalling or assembly area. The component commands have passed the intratheater movement requirements to their movement organizations, the Military Airlift Command (MAC) ALCC for air or the Theater Army Movement Control Agency (TAMCA) for surface movements from the POD to either the marshalling or assembly area.

When the unit's advance party, main body, and rear party have all arrived in the marshalling or assembly area, a message is prepared for transmission over AUTODIN informing the component command and the Service major command of the arrival. The Service major command then informs the Service that the unit has arrived in theater. The component command informs the supported CINC and the JDA that the unit has arrived in theater. The supported CINC and the JDA include the unit arrival information in their periodic status reports to the JCS, who in turn informs the NCA.

The communications connectivity for the Execution Monitoring Information Flow is the WMMCS Information Network (WIN) among the JCS, JDA, Services, Service major commands, supported CINC, component commands, supporting commands, and the TOAs. The backup to WIN is AUTODIN. The communications connectivity between the Service major command and a deploying subordinate unit is AUTODIN. The communications connectivity between a component command and an arriving unit is AUTODIN or the tactical communications system if installed.

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MATERIEL RESUPPLY AND PERSONNEL REPLACEMENT INFORMATION FLOW

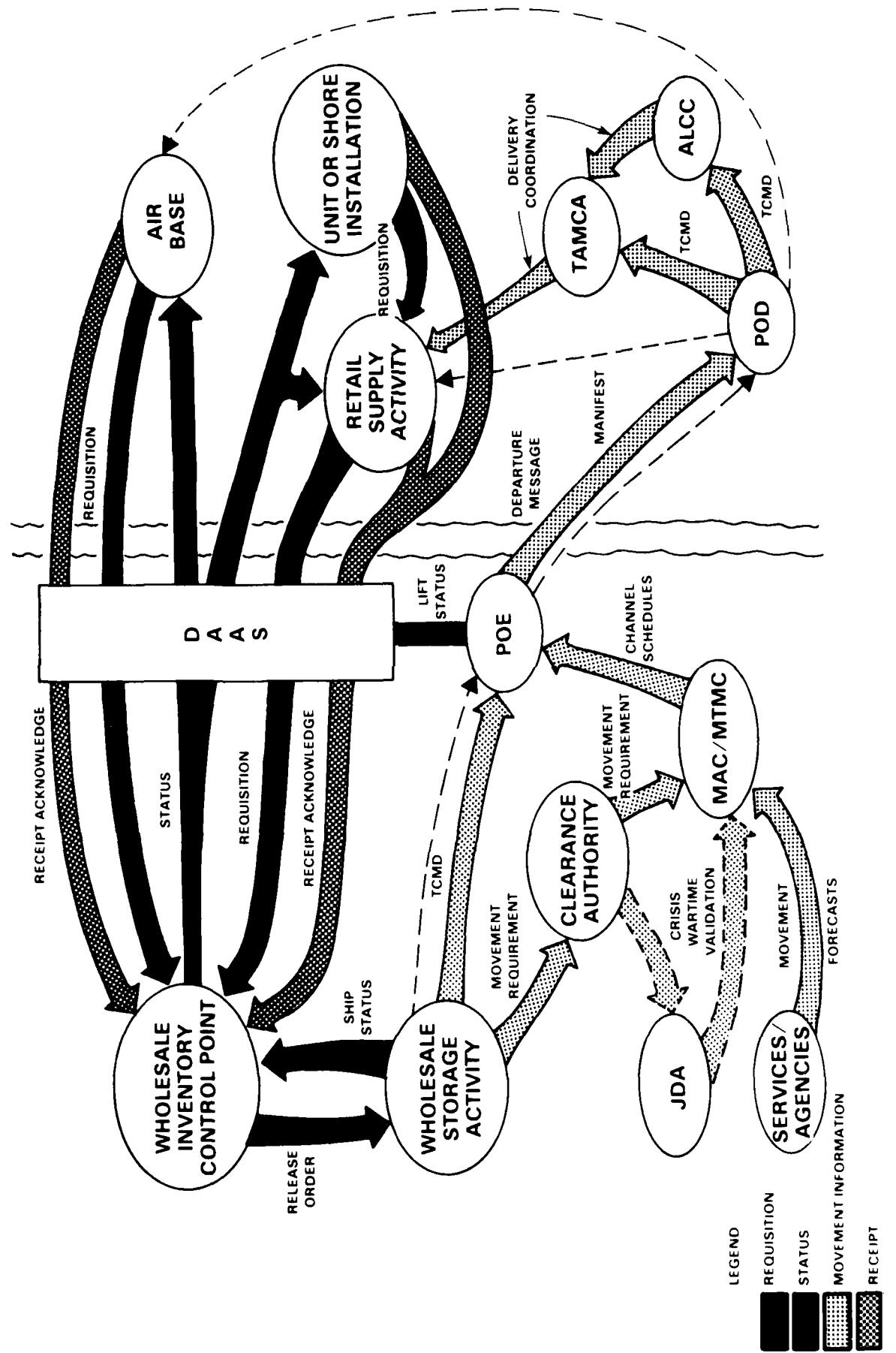
- REQUISITIONED MATERIEL RESUPPLY INFORMATION FLOW
- ALLOCATED MATERIEL RESUPPLY INFORMATION FLOW
 - SUBSISTENCE INFORMATION FLOW
 - POL INFORMATION FLOW
 - AMMUNITION INFORMATION FLOW
- NONUNIT-RELATED PERSONNEL INFORMATION FLOW

MATERIEL RESUPPLY AND PERSONNEL REPLACEMENT INFORMATION FLOW

This chart identifies the materiel resupply and personnel replacement functions which are discussed in detail in Volume II. The division of requisitioned and allocated resupply is based on the actions and information generation necessary at the retail (user) level. For requisitioned resupply, the information flow is in the form of requisitions submitted through logistics channels with processing status being returned through the same channels. For allocated resupply, the information flow consists of submitting requirements through normal command channels, allocating quantities at the different levels of the hierarchy, and then advising the appropriate entities as to the amount of the allocation. The physical movement of materiel is depicted at a highly simplified level.

The information generated for nonunit-related personnel replacement is in the form of strength authorizations, reports, orders, and transportation forecasts and schedules. The depicted physical movement of personnel is aggregated at a high level. The communications connectivity for both materiel resupply and nonunit-related personnel information flows shown on each chart is discussed in the accompanying text.

REQUISITIONED MATERIEL RESUPPLY INFORMATION FLOW



REQUISITIONED MATERIEL RESUPPLY INFORMATION FLOW

This chart shows the flow of information from the submission of a requisition, through the retail and wholesale processing systems, to the movement and receipt of the requested item by the requisitioner.

The materiel resupply of forces is the responsibility of the parent Service. However, the requisitioning, issuing, and reporting procedures as well as the cargo movement and reporting procedures are specifically prescribed by the Assistant Secretary of Defense for Acquisition and Logistics (ASD A&L).

The requisition for an item is prepared by the requesting organization. Army, Navy, and Marine Corps units submit their requisitions to a designated retail supply activity. In the Air Force, all units on a base are supported by a single base supply activity which prepares and submits requisitions to the materiel resupply system. Requisitions flow through the Defense Automatic Addressing System (DAAS) where a file for each requisition is built. Each time there is an action (status change) taken on a requisition, an advice card is generated and transmitted through the DAAS to the requisitioner. The requisitions are accumulated on magnetic media as they arrive at the Inventory Control Point (ICP). These accumulated (batched) requisitions are loaded into the ADPE supporting the item manager. As the batched requisitions are processed, Release Orders (ROs) are generated for transmission to the storage activity.

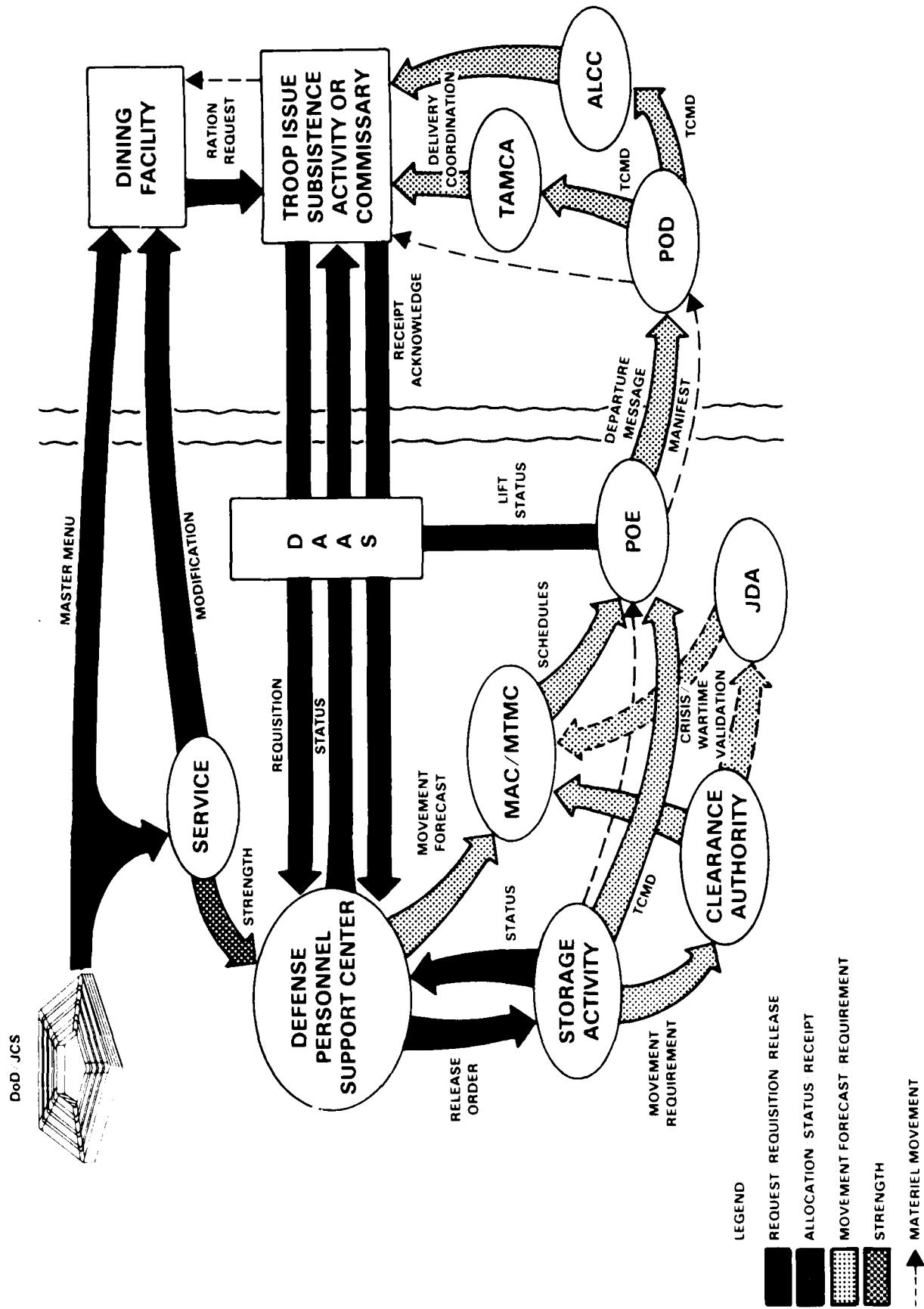
The Services forecast the day-to-day cargo movement requirements to MAC and MTMC. These forecasts are the basis for the preparation of channel traffic schedules. During crisis or wartime, the clearance authority is required to enter the transportation requirements for cargo in the JDS. This is a new requirement, called for in JCS Publication 15, and has not been fully implemented; hence, the broken arrows.

Upon receipt of the RO in the storage activity, the item is picked from stock, packaged, and packed for shipment. A Transportation Control Movement Document (TCMD) is prepared for all shipments other than US Mail and organic lift. The TCMD is registered with the Service Clearance Authority which provides the TCMD information to the MAC and MTMC for lift.

Upon arrival of the shipment at the POE, the shipment is scheduled for a specific lift vehicle. The POE personnel prepare a cargo manifest for each lift vehicle and notify each concerned P00 of the vehicle departure. POE personnel also prepare lift status messages for each TCMD which are distributed by the DAAS to the appropriate item managers and supply activities. The P00 personnel provide the TCMD data to the organization responsible for onward movement of the cargo to the theater destination. The requisitioner verifies that the item and quantity are correct. An advice card is prepared for transmission to the ICP acknowledging receipt of the item.

The communications connectivity into, within, and out of the requisitioned materiel resupply system is the common-user AUTODIN system. Tactical data transmission systems (when installed), hand delivery, courier, and messenger are backup systems.

ALLOCATED MATERIEL (SUBSISTENCE) RESUPPLY INFORMATION FLOW



ALLOCATED MATERIEL (SUBSISTENCE) RESUPPLY INFORMATION FLOW

This chart depicts the flow of information for allocated materiel resupply operations involving subsistence. Subsistence is allocated on the basis of three meals per day for each person on duty as modified by daily mess/dining facility headcount reports, strength accounting reports, and financial accounting reports.

The allocation of subsistence items begins with the issuance by DOD of the master menu, setting nutritional standards, and establishing the dollar value for each meal. The Service may modify the master menu by substitution. The dining facility personnel determine the subsistence items required on a daily basis by using the master menu and the actual number of breakfast, lunch, and dinner meals served each day. The daily requirement is drawn from the Troop Issue Subsistence Activity (TISA) or commissary where a record is made of the quantity of each meal drawn and the total dollar value. The TISA or commissary prepares and submits requisitions to the Defense Personnel Support Center (DPSC).

Requisitions flow through the Defense Automatic Addressing System (DAAS). The requisitions are accumulated on magnetic media as they arrive at DPSC. These accumulated (batched) requisitions are loaded into the supporting ADPE for processing to generate Release Orders (ROs) for transmission to the storage activity.

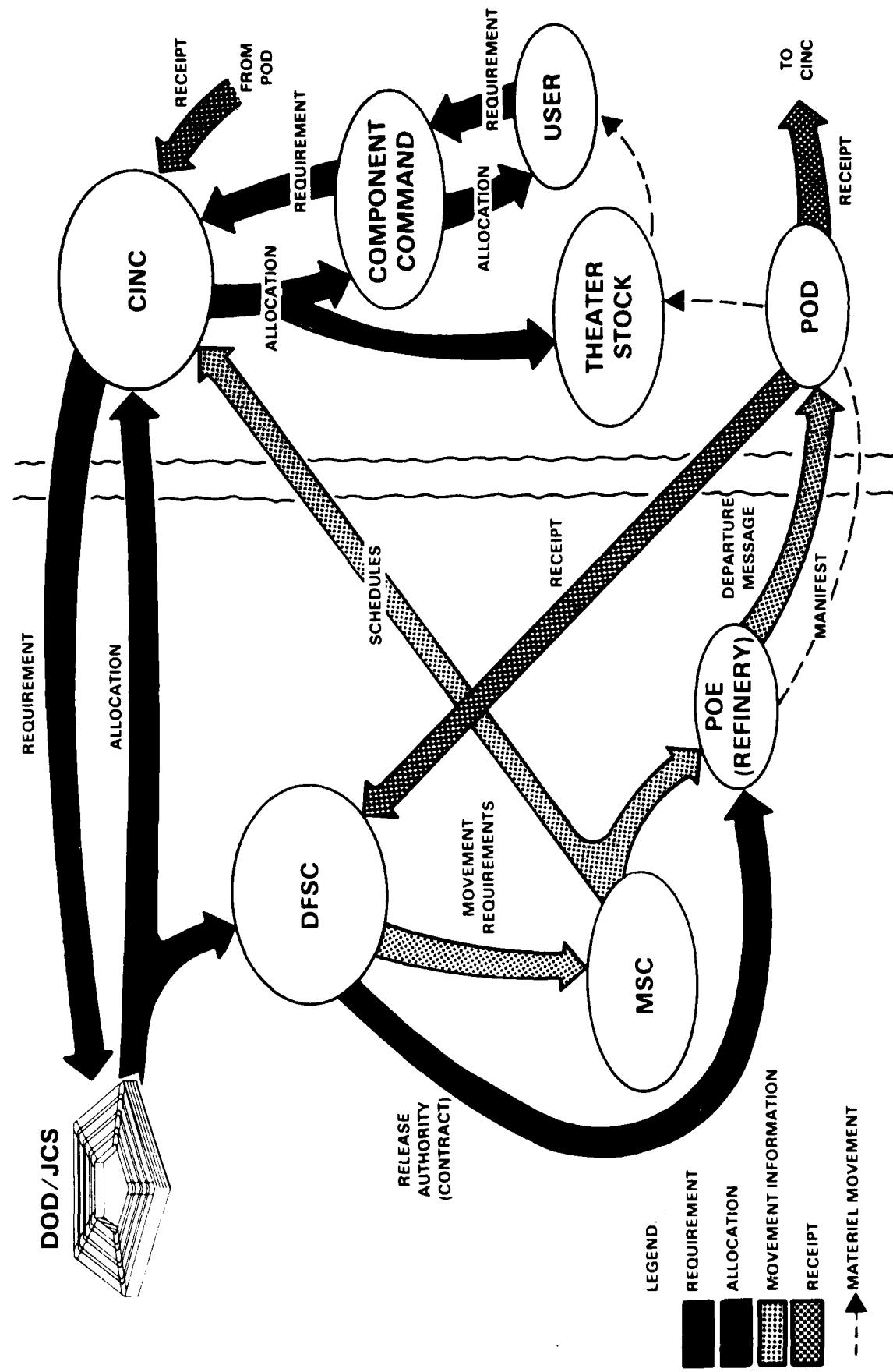
DPSC forecasts the day-to-day cargo movement requirements to MAC and MTMC. These forecasts are the basis for the preparation of channel traffic schedules. During crisis or wartime, the clearance authority is required to enter the transportation requirements for cargo in the JDS. As mentioned earlier, this is a new, not yet fully implemented, requirement.

Upon receipt of the RO in the storage activity, the item is picked from stock, packaged, and packed for shipment. A Transportation Control Movement Document (TCMD) is prepared and registered with the Clearance Authority which provides the TCMD information to MAC and MTMC for lift.

Upon arrival of the shipment at the POE, the shipment is scheduled for a specific lift. The POE personnel prepare a cargo manifest for each lift vehicle and notify each concerned POD of the vehicle departure. POE personnel also prepare lift status messages for each TCMD which are distributed by the DAAS to DPSC and the appropriate TISA or commissary. The POD personnel provide the TCMD data to the organization responsible for onward movement of the cargo to the theater destination. The requisitioner verifies that the time and quantity are correct. An advice card is prepared for transmission to DPSC acknowledging receipt of the item.

The communications connectivity between the TISA or commissary and DPSC is the common-user AUTODIN system. Hand delivery is used between the dining facility and the TISA or commissary.

ALLOCATED MATERIEL (POL) RESUPPLY INFORMATION FLOW



ALLOCATED MATERIEL (POL) RESUPPLY INFORMATION FLOW

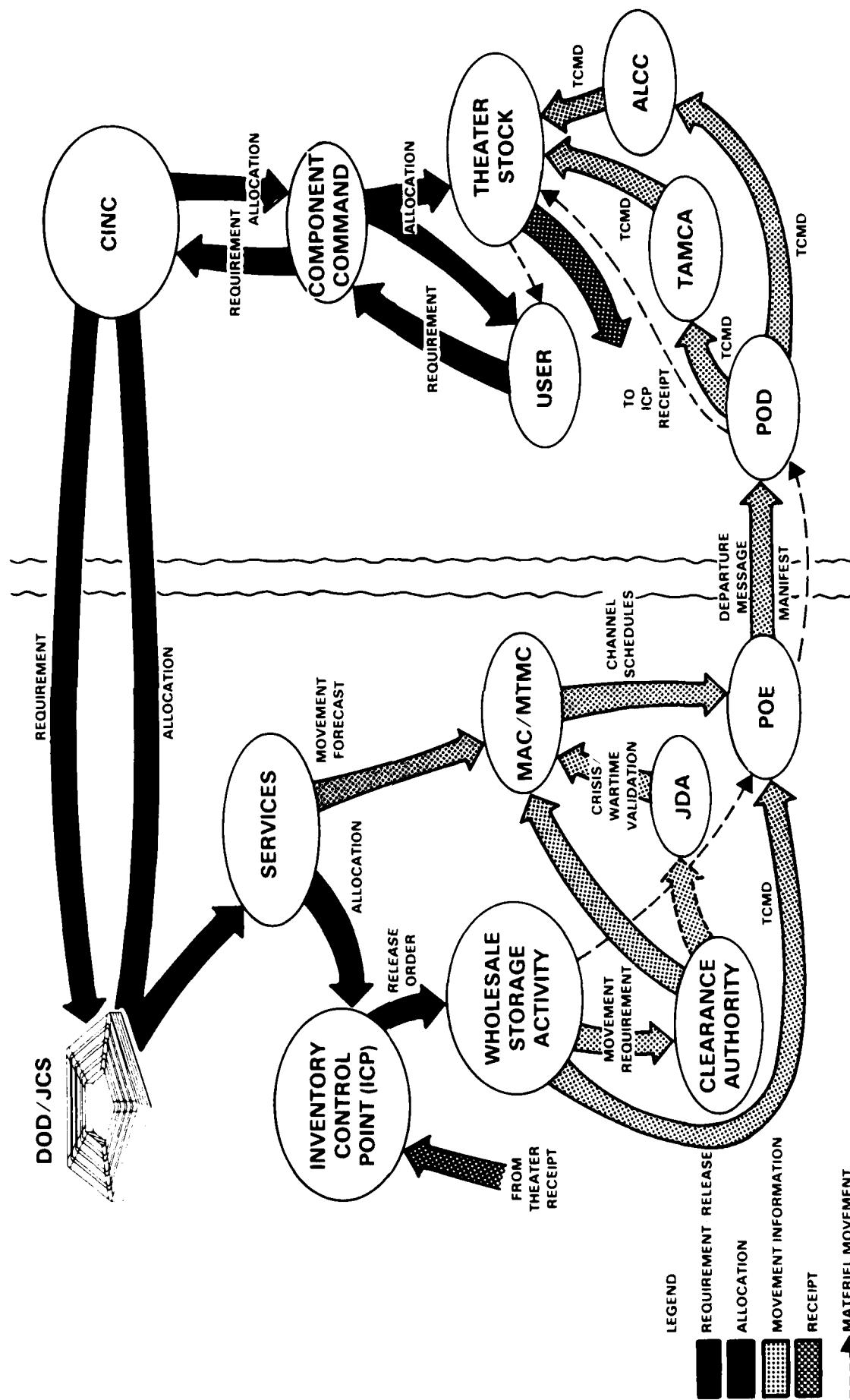
This chart depicts the flow of information for the allocated materiel resupply operations involving petroleum, oils, and lubricants (POL) in bulk. A unit forecasts its requirements for POL based on planning factors provided by higher headquarters.

The POL allocation process begins with the users estimating their requirements two fiscal years in advance for day-to-day operations and five fiscal years in advance for JCS-directed and coordinated exercises. CONUS units and units not part of a unified command submit their estimated requirements through normal command channels to their parent Service headquarters. The Services consolidate these requirements and submit them to the JCS for validation. The units in a unified command submit their requirements through normal command channels to the Service component headquarters for consolidation. The Service component commands submit the consolidated requirements to the unified command for review and forwarding to the JCS. The JCS validates the Service and unified command requirements, aggregates them, and forwards them to the Defense Fuel Supply Center (DFSC) for planning and execution.

The DFSC contracts with commercial refineries for the production, storage, and delivery of bulk POL to the tanker on a worldwide basis. DFSC assures that the CONUS on-base storage facilities serving the units which submitted requirements receive the allocated amount of fuel. DFSC provides Military Sealift Command (MSC) a forecast of bulk POL shipments approximately six months in advance. MSC then develops the tanker schedules and provides them to the POE and the CINC. There is a Joint Petroleum Office (JPO) in each unified command which coordinates the receipt and off-load of bulk POL. The JPO also monitors the total theater usage to assure that the JCS allocated quantity is not exceeded. Once the allocated bulk POL has arrived in theater, it enters the distribution system for delivery to supply points and air bases in accordance with the theater fuel allocations.

The communications connectivity for allocated materiel (POL) resupply is the US Mail, augmented by the common-user AUTODIN system.

ALLOCATED MATERIEL (AMMUNITION) RESUPPLY INFORMATION FLOW



ALLOCATED MATERIEL (AMMUNITION) RESUPPLY INFORMATION FLOW

This chart depicts the flow of information for the allocated materiel resupply operations involving conventional ammunition. A unit forecasts its requirements for conventional ammunition based on planning factors provided by higher headquarters.

The allocation of conventional ammunition in peacetime is primarily based on weapons training and unit basic load requirements established by the Services and maintenance of the war reserve. In crisis or wartime, the allocation is based on the stocks on hand and near term expected deliveries versus the requirement for ammunition to conduct the anticipated level of combat.

Using units compute their weapons training and basic load requirements based on criteria established by the Services. These requirements are submitted through normal command channels, aggregated at each command level, and submitted to the JCS.

The JCS compares the requirements with the conventional ammunition stocks on hand, purchased but not yet delivered, and funded but not yet under contract to determine shortfalls and then makes the allocations to the Services and unified commands. The Services and unified commands then suballocate. When the allocation reaches the using unit, it has the authority to draw the ammunition from the ammunition supply point, magazine, or storage activity.

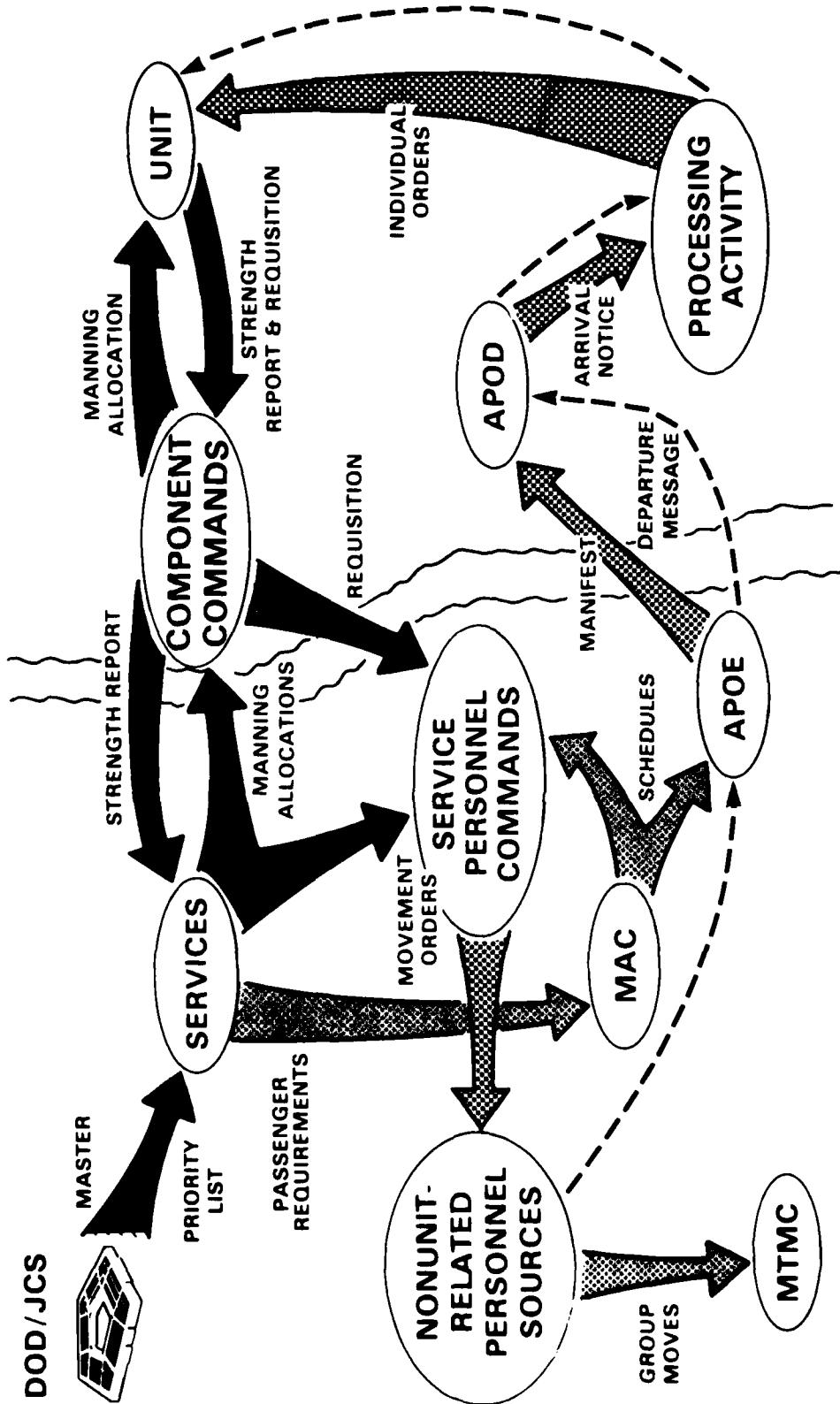
The Services forecast the day-to-day cargo movement requirements to MAC and MTMC. These forecasts are the basis for the preparation of channel traffic schedules. During crisis or wartime, the clearance authority is required to enter the transportation requirements for cargo in the Joint Deployment System (JDS) data base.

The Services inform the item manager at the Inventory Control Point (ICP) of the allocations. The item manager processes the allocations and generates release orders (ROs). Upon receipt of the RO in the storage activity, the item is picked from stock, packaged, and packed for shipment. A Transportation Control Movement Document (TCMD) is prepared for all shipments. The TCMD is registered with the Service Clearance Authority which provides the TCMD information to the Military Airlift Command (MAC) and MTMC for lift.

Upon arrival of the shipment at the POE, the shipment is scheduled for a specific lift vehicle. The POE personnel prepare a cargo manifest for each lift vehicle and notify each concerned POD of the vehicle departure. The POD personnel provide the TCMD data to the organization responsible for onward movement of the cargo to the theater destination. The requisitioner verifies that the item and quantity are correct. An advice card is prepared for transmission to the ICP acknowledging receipt of the item.

The communications connectivity for allocated materiel (Ammunition) resupply is the common-user AUTODIN system, augmented by the US Mail.

NONUNIT-RELATED PERSONNEL INFORMATION FLOW



LEGEND:

**AUTHORIZATION
REPORT/REQUISITION**

MOVEMENT REQUIREMENTS/SCHEDULES

DOCUMENTATION PERSONNEL MOVEMENT

NONUNIT-RELATED PERSONNEL INFORMATION FLOW

This chart shows the flow of information pertaining to nonunit-related personnel replacement from the establishment of the Service's force structure through strength authorizations, requisitioning by the units, to the personnel replacements arriving in the unit. The day-to-day personnel operations and management functions are a Service responsibility.

The DOD military strength, grade distribution, and major combat forces are identified in the President's Budget submission to Congress each year. After Congressional approval of the budget, DOD in conjunction with the Joint Chiefs of Staff (JCS) publish and distribute to the Services a master priority list of the major combat forces. The Services, in turn publish a master priority list. This list establishes the relative standing within the Service of the distribution of personnel and equipment assets. Each Service publishes a document for each type of unit's basic authorization for personnel and equipment. The Services distribute their master priority lists to their major commands and the personnel command. The major commands publish and distribute to their subordinate units the manning allocations established by the master priority list.

Each unit prepares a daily strength report and submits it through normal command channels to its major command. The major command aggregates the subordinate unit's strength reports and forwards the result to the Service headquarters. The unit periodically prepares a listing by grade and skill of the positions currently vacant. This listing is treated as a personnel requisition and submitted through normal command channels to the major command. The major command consolidates these personnel requisitions and forwards them to the personnel command. The Service staff, through monitoring the personnel command operations, identifies the number of passengers the Military Airlift Command (MAC) must move and provides the information to MAC. MAC then prepares an allocation of available passenger seats and provides this allocation to the Service personnel commands and the pertinent aerial port of embarkation (APOE).

The Service Personnel Command issues instructions to the losing unit (nonunit-related personnel source) to prepare reassignment orders for each person. The losing organizations prepare the individual reassignment orders. If there is a group of 21 or more moving within CONUS, the Installation Transportation Officer/Transportation Management Office (ITO/TMO) must request the Military Traffic Management Command (MTMC) to arrange the transportation.

When the personnel arrive at the APOE, they are scheduled for a specific flight and a manifest is generated. Upon arrival of the aircraft at the APOD, representatives of each Service take charge of their Service members and process them into the theater.

The communications connectivity for the nonunit-related personnel information flow is the US Mail and the common-user AUTODIN system.

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CURRENT COMPUTER PROGRAMS SUPPORTING MOBILITY C3

FUNCTION	UNIT/PERSONNEL	ESTABLISH REQUIREMENT	MATERIEL	LIFT	UNIT/MATERIEL	LIFT MANAGEMENT			INTRA THEATER			OPERATIONAL FOLLOWING		
						INTRA CONUS	AIR	SURFACE	AIR	SURFACE	AIR	SURFACE		
DEPLOYMENT -PLANNING	JOPS TPFDD JDS FRG COMPES COMPASS/AUEL SEMS	JOPS TPFDD JDS MRG	JOPS TPFDD JDS FRG MRG TFE IMAPS/FLOGEN SEACOP MAPS COMPASS/AUEL AALPS SEMS			DFRIF FMCS	MAIRS ITOPS AIMS LRCSS TIPS ADAM II*	DAMMS DASPS TERMS METS	DAMMS DASPS ITOPS AIMS LRCSS TIPS ADAM II*	DAMMS DASPS	DAMMS DASPS	JDS DFRIF PACADS OSGP MAIRS TIPS AIMS LRCSS		
-EXECUTION	JOPS TPFDD JDS COMPES COMPASS/AUEL SEMS	JOPS TPFDD JDS	JOPS TPFDD JDS IMAPS/FLOGEN COMPASS/AUEL SPUR AALPS SEMS COMPES DAMMS DASPS	UNITREP DEMSTAT										
SUSTAINMENT -MATERIEL														
-PERSONNEL	COMPES SIDPERS JUMPS/MIMS PRE-PAS				COMPES SIDPERS JUMPS/MIMS PRE-PAS									
LEGEND		SHADED-NOT APPLICABLE * ONLY IF PROCESSED THROUGH AN APOD												

CURRENT COMPUTER PROGRAMS SUPPORTING MOBILITY C3

This chart portrays the computer programs which currently support the tasks of deployment and sustainment. As used in this report, deployment encompasses both the planning and execution sub-tasks. Sustainment encompasses only the materiel resupply and nonunit-related personnel replacement subtasks. The functions required for the performance of the deployment and sustainment tasks are establishing the requirement for units, personnel replacements, materiel, and lift; recording and maintaining current unit readiness and materiel stock status; managing lift assets within CONUS, between CONUS and the theater, and within the theater; and following the progress of an operation.

The computer programs are arranged in a matrix of tasks and subtasks versus functions and sub-functions supported. This matrix clearly shows that many of the computer programs support multiple subtasks, functions, and subfunctions. Also, the programs supporting the materiel subtask are batch processing oriented with the exception of CAMIS.

FUTURE COMPUTER PROGRAMS SUPPORTING MOBILITY C3

FUNCTION	ESTABLISH REQUIREMENT		UNIT/MATERIEL		LIFT MANAGEMENT				INTRA THEATER		OPERATIONAL FOLLOWING	
	UNIT/PERSONNEL	MATERIEL	LIFT	STATUS	AIR	SURFACE	AIR	SURFACE	AIR	SURFACE	AIR	SURFACE
DEPLOYMENT -PLANNING	JOPES MODES COMPASS/AUEL SEMS	JOPES MODES	JOPES COMPASS/AUEL SEMS	JOPES MODES MOBSCOPE ADAMS SEMS	JOPES COMPASS/AUEL SEMS	JOPES MOBSCOPE ADAMS SEMS	JOPES UNITREP DEMSTAT	JOPES UNITREP DEMSTAT	JOPES TAMS	JOPES TAMS	JOPES TAMS	JOPES TAMS
					AUEL	ADAMS	ADAMS	ADAMS	ADAMS	ADAMS	ADAMS	ADAMS
-EXECUTION	JOPES COMPES COMPASS/AUEL SEMS	JOPES	JOPES	JOPES MOBSCOPE ADAMS SEMS	JOPES MOBSCOPE ADAMS SEMS	JOPES MOBSCOPE ADAMS SEMS	JOPES UNITREP DEMSTAT	JOPES UNITREP DEMSTAT	JOPES TAMS	JOPES TAMS	JOPES TAMS	JOPES TAMS
SUSTAINMENT -MATERIEL	LFSMS MOD SARSS DWASP M3S SAMS SBSS UDAPS-ICP ACS CCESS SDS SPBS WARS DREAMS	LFSMS MOD	LFSMS MOD	LFSMS MOD	LFSMS MOD	LFSMS MOD	LFSMS MOD	LFSMS MOD	LFSMS MOD	LFSMS MOD	LFSMS MOD	LFSMS MOD
					SARSS	DWASP	M3S	SAMS	SBSS	UDAPS-ICP	ACS	CESS
-PERSONNEL	REALFAMMIS COMPES SIDPERS				REALFAMMIS COMPES	REALFAMMIS COMPES	REALFAMMIS COMPES	REALFAMMIS COMPES	REALFAMMIS COMPES	REALFAMMIS COMPES	REALFAMMIS COMPES	REALFAMMIS COMPES
					SIDPERS	SIDPERS	SIDPERS	SIDPERS	SIDPERS	SIDPERS	SIDPERS	SIDPERS

LEGEND
 COLOR=NEW SYSTEM
 SHADED=NOT APPLICABLE
 PLAIN=CURRENT SYSTEM
 * ONLY IF PROCESSED THROUGH AN APOD

FUTURE COMPUTER PROGRAMS SUPPORTING MOBILITY C3

This chart portrays the computer programs which will support the tasks of deployment and sustainment in the future. As in the previous chart, the computer programs are arranged in a matrix of tasks and subtasks versus functions and subfunctions. The computer programs over printed with color are being developed or are current programs being up-graded and renamed. The computer programs without the color over printing are current programs which will continue operation with little, if any, up-grade.

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CURRENT COMMUNICATIONS SYSTEMS SUPPORTING MOBILITY C³

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CURRENT COMMUNICATIONS SYSTEMS SUPPORTING MOBILITY C3

This chart depicts the communications systems that have been identified as supporting mobility C3 versus the users of each system. The functions supported are D for Deployment, R for Materiel Resupply, and P for nonunit-related personnel. In the USER heading, the A = Army, N = Navy, F = Air Force, and M = Marine Corps under SERVICES represents the Service headquarters. Under the theater commands, the above codes (A, N, F, and M) represent the component commands. The column SUBORD UNITS represents all units below a Service major command (MAJCOM) or component command.

1. WIN - The WMMCCS Intercomputer Network is a secure, interactive computer network for the exchange of information among the JCS, JDA, Services, Service major commands, Unified and Specified commands, and Service component commands in the support of deployment execution and monitoring.
2. AUTODIN - The Automatic Digital Network and AUTOSEVOCOM - The Automatic Secure Voice Communications Network are the worldwide, secure, longhaul message and voice communications networks used in deployment and sustainment.
3. AUTOVON - The Automatic Voice Network is the principal longhaul, unsecured voice communications network used in deployment and sustainment.
4. NTS - The Naval Telecommunications System provides secure ship-shore-ship communications for vessels at sea. It is used in both deployment and sustainment.
5. The Services installed Tactical communications systems coupled with hand delivery, courier, messenger, and commercial telephone and data services are used in sustainment.
6. MCDN - The Marine Corps Digital Network is a dedicated, secure interactive computer network linking Marine Corps forces worldwide.
7. QUICKTRANS - The Navy contract cargo movement system and LOGAIR - The Logistics Airlift, managed by the Air Force Logistics Command (AFLC), are contractor owned and operated in support of CONUS resupply operations.
8. ARINC - Aeronautical Radio, Inc. - an unsecured, switched teletypewriter network linking the commercial airline operations centers. MAC uses this network to communicate with the owners of the Civil Reserve Air Fleet (CRAF). This network supports deployment and sustainment.
9. OLANET - The Defense Logistics Agency Teleprocessing Network is a dedicated, unsecured, interactive network which provides the capability to query DLA data bases to determine stock and requisition status. This network supports sustainment.
10. MINET - The USEUCOM Movement Information Network Test Bed is a dedicated, secure, network of smart terminals linking operating personnel at selected seaports, airports, and headquarters in the USEUCOM geographical area of responsibility. This network supports deployment and sustainment.

ENTREPRENEURIAL COMMUNICATIONS SYSTEMS SUPPORTING MOBILITY C³

LEGEND:	DEPLOYMENT	RESUPPLY	PERSONNEL	JOINT	COMMON USER	DEDICATED
D	-	-	-	-	-	-
R	-	-	-	-	-	-
P	-	-	-	-	-	-
JNT	-	-	-	-	-	-
CU	-	-	-	-	-	-
DCD	-	-	-	-	-	-

FUTURE COMMUNICATIONS SYSTEMS SUPPORTING MOBILITY C3

This chart depicts the communications systems that have been identified as those which will support mobility C3 versus the users of each system. The functions supported are D for Deployment, R for Materiel Resupply, and P for nonunit-related personnel. In the USER heading, the A = Army, N = Navy, F = Air Force, and M = Marine Corps under SERVICES represents the Service headquarters. Under the theater commands, the above codes (A, N, F, and M) represent the component commands. The column SUBORD UNITS represents all units below a Service major command (MAJCOM) or component command.

1. DDN - Defense Data Network is an evolving, secure, packet switch network for the transmission of data. With multiple-level security, it will subsume WIN, MCDN, DLANET, and replace AUTO-DIN. The DDN will support deployment and sustainment. Evolving systems to become part of DDN are:
 - a. LOGNET - The Logistics Network is a Department of the Army prototype automated logistics planning system for use in crisis action planning and deployment execution.
 - b. MINET - The USEUCOM Movement Information Network Test Bed is a dedicated, secure, network of smart terminals linking operating personnel at selected seaports, airports, and headquarters in the USEUCOM geographical area of responsibility. This network supports deployment and sustainment.
 - c. EDS - The European Distribution System is an Air Force materiel resupply system which places critical spares in Europe, dedicated cargo aircraft to rapidly move items, and an interactive computer network.
2. DSN - Defense Switched Network will replace AUTOVON - Automatic Voice Network as the worldwide unsecured voice communications network. This network will support deployment and execution.
3. SVIP - Secure Voice Improvement Program will replace AUTOSEVOCOM - Automatic Secure Voice Communications Network as the worldwide secure voice network. This network will support deployment and sustainment.
4. NTS - Naval Telecommunications System provides secure ship-shore-ship communications for vessels at sea. It is used in both the deployment and sustainment.
5. The Services installed Tactical communications systems coupled with hand delivery, courier, messenger, and commercial telephone and data services are used in sustainment.
6. QUICKTRANS - The Navy contract cargo movement system and LOGAIR - Logistics Airlift, managed by AFLC, are contractor owned and operated in support of CONUS resupply operations.
7. ARINC - Aeronautical Radio, Inc., an unsecured, switched teletypewriter network linking the commercial airline operations centers. MAC uses this network to communicate with the owners of the Civil Reserve Air Fleet (CRAF). This network supports deployment and sustainment.

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GENERAL

- THE MOBILITY C3 SYSTEM IS A COLLAGE OF COMPONENTS, MOST WORKING INDEPENDENTLY BUT DEPENDING ON OUTPUT FROM OTHERS.
- DEPLOYMENT C2 IS PERFORMED WITHIN A JOINT COMMUNITY.
- MATERIEL RESUPPLY AND NONUNIT-RELATED PERSONNEL REPLACEMENT C2 ARE NOT WELL RECOGNIZED CONCEPTS AND FOLLOW SERVICE LINES.
- REQUISITIONED MATERIEL RESUPPLY IS "PULL" ORIENTED AND RELIES HEAVILY ON ADPE AND ELECTRONIC COMMUNICATIONS.

COMMUNICATIONS

- MOST OF THE COMMUNICATIONS SYSTEMS SUPPORTING MOBILITY C3 ARE COMMON-USER SYSTEMS.
- NORMALLY MATERIEL RESUPPLY AND NONUNIT-RELATED PERSONNEL REPLACEMENT C2 COMMUNICATIONS TRAFFIC ARE OF LOWER PRIORITY THAN OPERATIONAL TRAFFIC.
- DDN WILL BE THE PRIMARY MOBILITY C3 COMMUNICATIONS SYSTEM.

ADP

- THE BULK OF THE ADP SUPPORTING MOBILITY C3 IS BATCH ORIENTED.
- PLANNED MOBILITY C3 ADPE IS MOVING TOWARDS COMPUTER-TO-COMPUTER INTEROPERABILITY, LAN TECHNOLOGY, AND ON-LINE PROCESSING.
- JOPES POTENTIALLY WILL REVAMP THE WORLD OF MOBILITY C3.

OBSERVATIONS

OBSERVATIONS

This chart presents several observations that summarize the state of mobility C3. These observations are descriptive rather than critical or recommendational.

The mobility C3 system consists of a collage of people, organizations, procedures, ADP, and communications systems. Most of the components of the system function independently to a large degree, but depend upon the cooperation of various organizations and outputs from other subsystems.

A collection of organizations known as the Joint Deployment Community (JDC) performs the deployment command and control (C2) functions. This community is composed of the JCS, the Services, the JDA, the Unified and Specified Commands, the Services' Major Commands, and DOD agencies.

The next item points out that within the logistics community, C2 is not a well recognized concept. There is growing recognition within the DOD that there are command and control functions which should be exercised over these operations just as it is over tactical and strategic operations.

The next observation is a reminder that the requisitioned materiel resupply process is a "pull" process in the sense that the organization in need must formally request (pull) the supply item.

The mobility C3 system relies on common-user communications systems. The primary systems are the WIN and AUTODIN. During deployment planning and execution, the WIN would be used extensively with AUTODIN serving as the backup.

The materiel resupply, personnel replacement, and transportation organizations rely on AUTODIN for transmission of enormous amounts of information which is relegated to the lowest priority and cannot be assured of timely service.

The observation that the Defense Data Network will become the primary mobility C3 communications system is not as trivial as it might seem. In addition to subsuming the traffic carried on the WIN, WINET, and AUTODIN, the DDN will absorb the traffic carried on a number of dedicated systems.

Currently, the ADP supporting mobility C3 is batch oriented. However, the planned mobility C3 ADPE is moving towards computer-to-computer interoperability, local area network (LAN) technology, and on-line processing. A major goal of many commands is to improve the ability to exchange data among computers. In many cases, this will be accomplished through communications front end processors or gateways in conjunction with LANs.

The last observation is concerned with the ultimate scope of the Joint Operation Planning and Execution System (JOPEX). The intent of JOPEX is to support the planning, execution, and monitoring of single to multi-theater scenarios with the potential for dramatically altering the nature of mobility C3.

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